IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF ARIZONA

Barry Lee Jones, Petitioner, vs. Charles L. Ryan, et al., Respondents.	)	4:01-cv-00592-TMB
	)	Tucson, Arizona
	)	November 2, 2017

BEFORE THE HONORABLE TIMOTHY M. BURGESS, DISTRICT JUDGE

Transcript of Proceedings
Evidentiary Hearing - Day 4 (A.M. Session)

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Jennifer Schneider, Paralegal with FPD
Daniel Vidal, Paralegal with AZAG
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(On the record at 9:15 a.m.)

THE COURT: All right. Are we ready to go?

MS. SMITH: Yes, Your Honor. We're actually going to call Dr. McKay first today before we resume with Dr. Hannon.

We call Dr. Mary Pat McKay.

THE COURT: Doctor, if you could please come forward and stand right over here in the witness box. You might want to use the seat closest to me. A lot of people like to use the seat farthest from me, but looks can be deceiving.

THE CLERK: Please raise your right hand.

MARY PATRICIA McKAY, M.D., WITNESS, SWORN

DIRECT EXAMINATION

BY MS. SMITH:

Q. Could you please state your name for the record.

A. Mary Pat McKay.

Q. Thank you. Good morning Dr. McKay. We appreciate you coming out to Arizona today.

Dr. McKay, where are you currently employed?

A. I am currently the Chief Medical Officer for the National Transportation Safety Board.

Q. Could you tell us a little bit about your educational background.

A. So I did my undergraduate work at Yale, went to medical school at the Columbia College of Physicians and Surgeons, and did that on a military scholarship. Following that, I spent a

year as an intern at the Naval Hospital in San Diego. The Navy sent me out as a general medical officer for four more years, and I served that time in Upstate New York. Then completed my residency in emergency medicine at the George Washington University, in 1998. Then, in 2002, I think, completed a master's of public health.

Q. Great. Could you just briefly describe to us what emergency medicine is.

A. Emergency medicine is the care of urgent and emergent health issues. Really, it means taking care of whoever walks into the emergency department wherever you're working.

Q. Do you have any areas of expertise or specialty within that field?

A. I have no formal expertise. However, I have been doing research in injury care and trauma care for the last 20 years.

Q. Could you just give us a brief overview of your career history after your residency.

A. I have worked in --

Q. We don't need to know every single hospital you've been in.

A. Sure. I've worked in almost 20 different hospitals, emergency departments. I think, since residency, it's three countries and nine states.

Q. Until you went to the NTSB, what were you doing?

A. I was a Professor of Emergency Medicine and Public Health at the George Washington University in Washington, D.C.

Q. You also treated patients at the George Washington Hospital?
A. Yes.
Q. Have you ever treated an injury like the one at issue in this case?
A. I have.
Q. More than one?
A. Yes.
Q. Do you have any board certifications?
A. I am board certified in emergency medicine.
Q. Are you a member of any associations or professional organizations?
A. Several. I won't give you the entire list. As of last week, I was named as a Fellow of the Association for the Advancement of Automotive Medicine.
Q. I think you mentioned that you've done research in the area of trauma care and injuries, have you published articles in these fields?
A. Yes.
Q. Could we just take a quick look at Exhibit 114.
Could you just identify what we're looking at.
A. You are looking at my résumé, or my CV.
Q. That's in evidence. We don't need to go through it page by page, I don't think.
Dr. McKay, have you ever previously consulted as an expert

in a criminal case?
A. I have not.
Q. Have you testified before?
A. I have.
Q. In what capacity?
A. As the treating physician, either for the victim or for the defendant.
Q. So you were essentially a fact witness, but you had an area of expertise that you were relying on?
A. Correct. And in one case they officially made me an expert witness, although I was really just there to enter data into the -- into evidence.
Q. Have you ever previously been retained as a defense expert?
A. I have not.
Q. Do you recall when you were first contacted by the Federal Public Defender's office?
A. I believe it was sometime in 2008.
Q. Had you ever worked with the Federal Public Defender's office before?
A. I had not.
Q. Do you have any other current consulting contracts with defense agencies?
A. I do not.
Q. What were you asked to do in Mr. Jones' case?
A. Well, the first question was to understand the description

of the injuries to the child, and I was told that the timeline in the original prosecution was very short. And my initial reaction to that was, well, that doesn't happen that way. And then I was asked to write a brief to explain why that was.

Q. Let's take a look at that report. It's Exhibit 113.

THE COURT: It is admitted?

MS. SMITH: It is admitted.

THE COURT: Thank you. Go ahead.

BY MS. SMITH:

Q. The first page, I believe, is a declaration that you signed?

A. Yep.

Q. And if we could look at Page 30. Maybe we need to go back one page. Sorry about that.

This is the report that you authored in October of 2009?

A. That's correct.

Q. Did you review some materials related to this case before you authored your report?

A. I did.

Q. Do you recall some of the materials from the record that you reviewed?

A. So the autopsy and the autopsy photos. Rachel's medical records from her primary care source of care, as well as from her trip to the emergency department at the end of her life. The testimony of the other physicians, Dr. Howard and

Dr. Seifert; I believe the pretrial testimony, as well as their testimony in both trials.

Q. You also undertook a literature review as part of your work?

A. I did, looking for evidence of exactly how long it takes for this injury to cause a problem.

Q. Could you give us a brief summary of how you did that review.

A. Sure. Looking primarily for pediatric injuries focused on those 15 years old and less, and looking in the English language literature available in the peer reviewed journals; that's global literature but in English. Looking for duodenal rupture, duodenal perforation, duodenal laceration, treatment and outcomes.

Q. Based upon your review of both the literature and the materials in this case, do you have an opinion regarding the likely timing of the fatal abdominal injury to Rachel Gray?

A. I do.

Q. What's that opinion?

A. There is not a single reported case in the medical literature where the time from the known time of injury to the time of death was any less than 48 hours.

Now, because there may be unreported cases, I am perfectly willing to say this did not occur in under 36 hours from the time of the injury to the time of death.

Q. Just to confirm, that opinion is based upon the review of the records, the review of the medical literature, and your own personal experience as a treating physician?
A. That's correct.
Q. Let's talk a little bit more about the specific injury at issue in this case.
Can you describe to us the exact injury that led to Rachel's death?
A. So what she had was a perforation or a laceration of the posterior aspect and right lateral aspect of her duodenum in the retroperitoneal area. How much of it was really the descending portion and how much was the transverse portion is sort of right at the corner. And that led to her death by eventually causing sepsis.
Q. Do you know what the cause of the laceration to Rachel's duodenum was?
A. I don't.
Q. Is it consistent with some sort of blunt force trauma?
A. It is.
Q. Do you have any opinion as to whether it was accidental or non-accidental?
A. It can be either. Given the delay in the treatment of this child, it suggests that it was non-accidental, but I have no way of knowing.
Q. In your personal experience, you mentioned that you have

treated some duodenal injuries. Do you have experience with some injuries that had causes other than motor vehicle accidents?

A. Sure. I've seen bicycle handles, and really the kid didn't actually go over the handles, he just got a handle into his gut. I've seen an injury in a slightly older kid, a 17-year-old, who was wrestling with a friend and got a knee into his solar plexus essentially, and caused essentially this injury in isolation without a lot of other intra-abdominal injuries.

Q. In that case, how did that patient present to you?

A. Perfectly healthy, skinny teenager. Had some abdominal pain, enough to bring him into the ER. He came into the emergency department and we evaluated him and did a CAT scan of his abdomen. Nothing in the emergency department is ever as fast as it looks on TV. He became frustrated with how long it was taking in the emergency department, pulled out his IV and left, before we had a chance to really identify exactly what was going on in his abdomen.

Unfortunately, we discovered that this was what was going on: that he had air in his retroperitoneum because of a rupture -- it's pretty much the only way to get air there -- without a lot of other injuries.

And we had to call him back. He came back the next afternoon, really quite frustrated. He didn't want to be

there, and he was even more unhappy when the next thing we did was send him to the operating room.

Q. Is that consistent, that delayed potential diagnosis and also delay in severe symptoms consistent with your experience in these injuries in other contexts, as well as what you've seen in the literature?

A. It is. Essentially, this is a smoldering process. The literature reports cases where the correct diagnosis wasn't reached and the surgical repair undertaken for seven days.

Q. You mentioned that this laceration was in the retroperitoneal space, can you explain to us what that is?

A. Sure. The abdomen, in the back half, has some fibrous tissue that separates the abdominal contents -- the stomach, the liver, the intestines -- from the space behind it, the retroperitoneal space, which contains a bunch of muscles, your kidneys. And the duodenum is pretty unique, in that it starts out inside the abdominal cavity, goes through that fibrous tissue, and then comes back into the abdominal cavity.

Q. In terms of the timing that we are focused on here, what's the significance of the fact that the laceration was in the portion of the duodenum in the retroperitoneal space?

A. There's two things. One is that it was in the duodenum. It's relatively germ free. It has acid from the stomach, it has the secretions from the pancreas, it has bile from the gallbladder, but it really doesn't have much in the way of

germs in it at that stage. So, depending on the size of the laceration, how much spillage there actually is, initially the effect is of inflammation rather than infection. Infection eventually sets in, but it takes time to do so.

Q. How are these injuries generally caused, in terms of the mechanism that actually causes the rupture to the duodenum?

A. There's really two theories, and no one is really a hundred percent sure which is right in an individual case. Because the duodenum is a tubular structure, it has muscle activity, peristalsis, that moves the food along. It also has food and liquid in it, and gas. And so whether this is a blow against sort of a balloon and the balloon ruptures in one place, or whether this is sort of smushed, if you will, up against the vertebral body and torn in that fashion, we don't know.

Q. Are these injuries generally treatable?

A. They're very treatable. It's not fun, but they're very treatable.

Q. What happens if injury is not treated?

A. If it goes untreated, then what happened to Rachel happens, which is infection sets in, eventually overwhelming sepsis, and finally death as a result of the sepsis.

Q. Do you have any familiarity with the symptomology that would appear over time as that process happens?

A. Sure. There would be some discomfort initially. How much discomfort depends on the person and exactly the extent of the

injury.

The next thing, as things smolder, is more pain; but, again, how much that is perceived by the person is variable. And eventually, with sepsis, you get fever, lethargy, vomiting, all of those things.

Q. Could we take a quick look at the autopsy report, which is in evidence as Exhibit 52? And could we take a look at Page 8? Could we make larger under your -- great. Thank you.

So here we have a description of some fluid that was present in the peritoneal cavity, is that consistent with the process you just described?

A. Yes. In addition to her injury to the retroperitoneal space, there would have been inflammation coming through that connective tissue into the abdomen. But she also, by the time this process had ended, had an inflammatory process going on in the wall of her colon as well. So this is just sort of inflammatory exudate, if you will, of the infection that was going on.

Q. Could we take a look at finding number six?

Is this also consistent with what you just described about the inflammation that we see in the retroperitoneal space, which also affected some of the surrounding structures?

A. Sure. And the gas formation may have been gas from the duodenum itself, or it may have been from the bacteria that were now infecting the area.

Q. Let's go back to your report.

In your review of the literature, you might have just mentioned this, but did you find cases in which individuals suffered duodenal lacerations, like the one Rachel had, they didn't receive any treatment for four, even, I think you just said, seven days, and they still survived?

A. That's correct.

Q. Did you find any instances in which a duodenal laceration resulted in death within 48 hours between the time of injury and the time of death?

A. The described cases are children who are identified at 48 hours and went to the operating room and died thereafter, it's not given in any of the reports how long after, and so that's where the 48 hours comes from.

THE COURT: I'm sorry. Can I ask a question?

THE WITNESS: Yep.

THE COURT: Because when you testified about this earlier, you pointed out that 48-hour figure, but then you said, in this case, you thought no sooner than 36 hours. So if the reported literature, as I understood it, that you reviewed said no sooner than 48 hours, why are you saying in this particular case? Because that would make this an outlier, wouldn't it?

THE WITNESS: It would make it an outlier in the reported literature, but obviously not every case of this

injury is in the literature. So really just to say in an extreme case where there was a ton of spillage and it went fast, perhaps it could go as much as 12 hours sooner. It wouldn't go sooner than that.

BY MS. SMITH:

Q. Is it fair to say that most of these injuries take at least 48 hours, but in terms of rendering an opinion about what's possible, you wanted to give yourself -- I think in your interview you said "a little wiggle room"?

A. Right, I was trying to be as absolute as possible. There's not a reported case sooner than 48 hours. I really was willing to say -- pretty absolutely in this case, I was willing to say not sooner than 36 hours from the time of injury to death.

Q. In the literature review, are these injuries often accompanied by other injuries that ultimately lead to death?

A. Yes. Certainly if this happens in a high speed motor vehicle accident, there can be brain injuries, chest injuries, broken bones, other injuries inside the abdomen causing acute hemorrhage; all of those can lead very quickly to death.

Q. But you did review some cases where death was due solely to the duodenal injury?

A. Yes.

Q. And in those cases, again, none of those occurred in less than 48 hours.

A. None of those occurred in less than 48 hours, when the time

is given in the record.
Q. Could you just explain to us what the reason is for this delayed process that it takes between the time of injury and the time of death?
A. Sure. It really is this whole inflammatory cascade has to happen. It gets triggered by the injury, cells get attracted to the area, white blood cells, for instance. Other inflammatory mediators get turned on. There's a whole process of turning genes on in these cells that takes time. It's not instantaneous.
Then as the bacteria find the spot, then the infection sets in, and then the response to the infection has to occur. And physiologically what happens in children is really that they compensate for a very long period of time with this inflammatory process going on.
Q. Does that lead to a delayed presentment of symptoms that might be recognizable?
A. Well, it's not just a delay in symptoms. The child probably has the symptoms, but, particularly in this age group, the ability of the child to explain that this isn't the same as the stomach ache she had last week after eating too much Halloween candy, that it's different, and that it's worse in some way, they just lack the ability to express any of that, even if they could understand it.
Q. Often that leads to a delay in seeking medical care?

A. It can lead to a delay in seeking medical care. We know that kids in this age group are more likely to perforate their appendix -- which is another acutely painful abdominal problem -- than older children are, in part because the degree of severity just is hard to perceive.

Q. Is there also sometimes a delay in diagnosing these injuries once they appear at an emergency room?

A. There is. And really, among the things that have changed in the last twenty-odd years is that the quality of CT scanning has improved dramatically, and so our ability to detect that there is air or inflammation in this little area of the retroperitoneum is much better now than it was before.

In those countries that are still not routinely using CT scans, they're using a serial exam -- meaning the child gets examined by a physician over a period of time -- and ultrasound to try and diagnose those plane x-rays. All of those things really only are going to detect the problem when it becomes fairly large.

Q. And do you know what the process would have been for diagnosing back in 1994?

A. The process for Rachel would have been to get a CAT scan of her by the time that she -- depending upon where in the process she arrived, how accurate that CAT scan would be at arriving at the diagnosis, it's hard to say. It would depend upon the quality of the scanner and how far down the pathway she'd gone.

Q. Is it possible that children might be eating and drinking at some period after suffering this type of injury?
A. My 17-year-old had a big sub for lunch, and that actually delayed his operation.
Q. By, your 17-year-old, you mean the patient you earlier described?
A. The one with the same injury, yes.
Q. The Judge asked you a few minutes ago about whether, you know, there was anything special about this case that was causing you to change your opinion, or, you know, modify --
THE COURT: Excuse me. I think it's deviate from the reported cases of not sooner than 48 hours --
MS. SMITH: That is a much better statement. Thank you, Your Honor.
BY MS. SMITH:
Q. Did you see anything in Rachel's medical records or in her other injuries that she suffered that would make you think that this would deviate from the normal case in some way?
A. Nothing. She was a relatively small kid. She was at the 25th percentile. But she wasn't -- had no evidence of being malnourished, and didn't have any other chronic medical conditions that would have potentially changed the course of this particular injury.
Q. So there really is nothing to make you think that this would be faster than what you observed in the medical

literature.
A. Nothing.
Q. Could we take a look at Page 33. Again, this is Exhibit 113, which is your report. Could we highlight the first opinion listed there.
This, again, repeats your conclusion that you stated earlier, that you believe that Rachel's injury occurred no sooner than 36 hours prior to death, and likely occurred much earlier, and there is absolutely zero evidence to suggest it could have occurred less than 24 hours.
Is that still your opinion?
A. That's still my opinion.
Q. Again, this is based on the review of the medical literature, as well as the records in this case, and your own personal experience?
A. That's correct.
Q. I am going to shift gears a little bit to some of Rachel's other injuries.
Are you aware that Rachel also suffered a scalp laceration?
A. I am.
Q. Do you have any opinions about what might have caused that injury?
A. I don't.
Q. We also discussed some bleeding in Rachel's ears that was present. You're going to have to remind me again how to

pronounce that term.
A. Hemotympanum.
Q. Thank you.
What are the potential causes of this hemotympanum?
A. There's really only three things that cause it. It's bleeding into the eardrum or behind the eardrum. And you can have that if you have a fracture of the bone behind the eardrum. You can have that from barotrauma, which is typically going up to altitude or down into the ocean and not being able to manage the pressure in that part of your year, the back part of your ear. So we'll see it occasionally in scuba drivers.
And then being -- the old-fashioned term would be "slapped upside the head." Sort of a cupped hand or a slap across the ear makes a concussive force that can cause this injury.
Q. Can you say anything about the potential timing of that injury?
A. I cannot.
Q. Is it possible that the blood could have been present for seven or more days?
A. Yes.
Q. I want to take a look at Exhibit 65B. Again, this is a sealed exhibit.
THE COURT: Before you go on, a related question to the blood in the ear. We heard some other testimony that there is a phenomena that occurs at death, which is -- I think the

term that was used was "purging." So that blood can emanate from the mouth and the nose and on occasion from the ears, too, as I understood the testimony. Can you give any insight into that?

THE WITNESS: The fact that this was a bilateral finding, it was described similarly in both ears, and that there wasn't any underlying injury that would have been known about to have caused bleeding at the very time of death makes me believe that it happened before death, that it was not associated with the dying process, per se. There was some injury there.

THE COURT: But I guess my question is -- okay. So I understand what you're saying, you think it was probably there before. But did I understand the prior testimony about this phenomena of purging to be correct or incorrect?

THE WITNESS: So purging is typically liquids coming out of the body as all of the body orifices relax, everything relaxes. There is not any fluid or blood in and around the ear that would cause it to flow into that place at the time of death. Now, that said, because Rachel died of sepsis, one of the things that can happen in sepsis is something called disseminated intravascular coagulopathy, which means that you start to bleed from places that weren't bleeding before, and you can even can be breaking down clots that have been there for a while. So if she'd had a little injury, it's possible

that around the time of death the bleeding increased, but there had to have been some injury there to begin with.

THE COURT: Just wouldn't happen spontaneously.

THE WITNESS: It wouldn't have happened spontaneously.

THE COURT: Got it. Thank you. I'm sorry. Go ahead. You were pulling up an autopsy photo.

MS. SMITH: No problem. Thank you, Your Honor.

BY MS. SMITH:

Q. If we could enlarge the top photo on this page.

We can talk while we're pulling up the photo.

This top photo that we're looking at here, Autopsy Photo 849, have you seen this photo before?

A. I have.

Q. Have you observed that there is a circular mark on Rachel's chest?

A. Yes, I have.

Q. Do you have any opinion about whether this particular mark could have been caused by any attempted medical care that Rachel might have received on the morning of her death?

A. So this is remarkably circular compared to some of the other bruises on her body. The phenomenon that we see when we apply sticky medical equipment, in this case EKG electrodes, to a deceased person, and then pull them off, is something called "skin slippage." And my suspicion in this case, we know when Rachel arrived at the emergency department they did apply a

monitor to her, and then at some point before this photograph, those were obviously removed, so my suspicion is that this is a manifestation of that event.

Q. Have you seen similar marks before in other cases?

A. I have.

Q. The Judge was just asking you about the bleeding in the ears. You mentioned that DIC is a possibility that was happening when Rachel was going through the septic process. Is it possible that Rachel would continue to bleed after death or that wounds that might have previously closed over could open and ooze some blood?

A. So really while she was still alive and had a pulse, the DIC can cause previously closed wounds even a few days old to begin to bleed again. It can be very disturbing to people obviously.

Q. I guess I asked you two questions. I apologize.

The second question is really is it possible for blood to continue to seep out of wounds after someone has died.

A. For a brief period of time, gravity happens. Okay. So depending upon the size of the wound and the amount of blood in the blood vessels in the neighborhood, yes. In this case we're talking about a scalp wound. It was wet at the time, it would have been wet, it could have kept being wet for some period of time afterwards.

Q. Could I just quickly show you Exhibit 49, which is another

sealed exhibit?

This is a photo of Rachel taken at autopsy with what appears to be some fresh blood. Is that consistent with what you just described?

A. Well, I agree it's blood. I can't tell if it's fresh or not. And it's in the area where her head would have been in the bag, so that's consistent with rubbing up against the laceration on her head.

Q. Is it possible that when Rachel was transported to the hospital that morning that some blood from that wound might have gotten into Mr. Jones' van?

A. It appears it could have been still wet at the time, it was wet enough to mark the bag.

MS. SMITH: I don't have any other questions.

THE COURT: Thank you.

Cross-examination.

CROSS-EXAMINATION

BY MS. GARD:

Q. I just have some very, very brief questions for you today.

Now, you, as an emergency room doctor, your job when someone comes into the hospital with peritonitis, would be to stabilize them and provide initial treatment, right?

A. And make the diagnosis of where the problem is.

Q. And make the diagnosis. But you wouldn't normally -- if someone were to die, it would be up to a pathologist in most

cases to determine exactly why that person died, right?
A. Correct, we would just do an external exam.
Q. Right. That's not part of your normal practice, to figure out why a patient may not have survived.
A. Right.
Q. Also, often when someone comes into the hospital with an injury like this, after you provide the initial treatment, you triage the care over to a surgeon, right, who repairs the problem, correct?
A. Yes. Well, or to another hospital where, in this case, there's a pediatric surgeon.
Q. A pediatric surgeon. On direct, you talked about your literature review in this case. I believe you told us before that you reviewed a number of articles, right? But I think when we talked to you before, you didn't have a complete list of everything you had looked at because I think you had changed employment and some of your lists had been lost?
A. Right, I had changed jobs, and so my electronic data doesn't necessarily convey with, unfortunately.
Q. So we still don't have a complete list of every article that you read to form your opinions in this case.
A. That's correct.
Q. And you agreed on direct that not every case of peritonitis or duodenal injuries make it into the medical literature, right?

A. Of course not.
Q. There are probably many, many, many more cases out there where this had happened.
A. Yes.
Q. Right. Even with the literature you reviewed, there is a very wide range of time during which -- let me rephrase the question.
The case studies that you looked at, the time between the injury and the symptoms appearing, it varies between people, right?
A. I wasn't looking at when the symptoms began.
Q. Or when death occurs.
A. Yes.
Q. Yes. Because I believe you cited cases 48 hours, and then on the other end I think you cited seven days?
A. Right, and those children had the -- went to surgery at seven days and survived.
Q. Okay. But what I am trying to get at, and I think you acknowledged this when we interviewed you, is that there are some individual variations between people and how their bodies react to injuries, right?
A. And there are differences in the degree and location of the injury as well.
Q. Correct. Correct. But each person's body -- if you and I sustain the same injury, you couldn't predict that we would die

at the exact same moment, right?
A. That's correct.
Q. And many of the articles that you looked at -- in fact, I think all of the articles that you looked at -- focused on treatment of these types of injuries, right?
A. Some of them focus on diagnosis.
Q. And diagnosis. But there weren't any, you know, articles written by specialists in pathology, for example, analyzing specifically the time it takes for someone to die from peritonitis associated with this injury.
A. So I looked for information in the pathology literature and found nothing.
Q. Found nothing. So you found no published research into that area.
A. No. Unfortunately, oftentimes the pathologist doesn't necessarily know when the injury occurred.
Q. And that's true often in child abuse cases, right?
A. That's particularly true in child abuse cases.
Q. I think some of the literature that you looked at that discussed non-accidental trauma did acknowledge that the time of injury was uncertain, right?
A. That's correct. It may be uncertain.
Q. Because oftentimes people have a motive to conceal information with child abuse, right?
A. Well, and the child may be too young to be able to tell

when something occurred.
Q. Right. So it's not always reliable when it's a non-accidental injury, the timing is not always reliable, right?
A. Correct.
Q. Okay. This is not an injury that you see frequently, right?
A. It's a rare injury to begin with.
Q. Last question. You were questioned about the circular mark on Rachel's chest, acknowledging your opinion that it's from some sort of medical device being applied. I think you told us before that an actual bruise cannot be inflicted after death, is that right?
A. To form a bruise?
Q. Correct.
A. Requires bleeding.
Q. Requires -- and you have to be alive to be able to bleed?
A. Essentially you have to be alive to be able to bleed. Now, can you have an injury at the time of death and some oozing into that area as your heart is stopping or just after it stopped? Sure. But it's not going to be -- you're not going to suddenly form some new giant bruise after death.

MS. GARD: No further questions.

THE COURT: Redirect?

REDIRECT EXAMINATION

BY MS. SMITH:

Q. Just very briefly, Dr. McKay.

In terms of your medical review in the literature, even in those cases where the injury's presented quickly, you still did not find any cases where there were less than 48 hours between injury and death, is that correct?

A. That's correct.

Q. And in the instances of child abuse, was there often an even longer delay between presentment and/or diagnosis?

A. The delay -- there was a delay in diagnosis. There may also have been a delay -- a delay in presenting to care, but there may also have been a delay in diagnosis. If you don't get the right story, you don't necessarily look for the right injury.

Q. So even in the child abuse cases that you reviewed, there was no evidence that these injuries occurred within 48 hours of death.

A. That's correct.

MS. SMITH: I don't have anything else.

THE COURT: I've got a couple quick follow-up questions.

THE WITNESS: Yes, sir.

EXAMINATION BY THE COURT

Q. You were asked on cross-examination about bruising and whether or not bruising could occur after death. We heard some

testimony earlier in this case that sometimes marks can appear on the skin that are not actually bruising but I think it was described as sort of pooling after death. Is that your, understanding?

A. So you can have lividity, which is sort of a redness that typically happens in the dependent portions of the body after death. That's really just gravity happening on the liquid in the body.

Q. I don't know if you reviewed this in your review of the file, but in some of -- just to continue on that same line, some of the autopsy pictures evaluated the tissue underneath the skin, and it was explained that while you might have red marks on the skin, a bruising would go down below the skin, especially in the chest area, for instance, if somebody had been struck.

A. So my understanding is the depth of the bruise really matters the amount of force that's applied and what kind of tissue is underneath it. So if you have a lot of -- if you have a lot of fat, you may just see something in the skin and nothing in the fat. If you press hard enough and there's muscle underneath, you should see bleeding into the muscle underneath.

Q. I think you were asked a couple questions both on direct and on cross having to do with the manifestation of symptoms from this type of an injury, the fatal injury to the small

intestine. Is it common or uncommon, based on your experience or your review of the literature, for patients who actually have this injury to be sort of asymptomatic from the standpoint of others seeing, or seeing indications that they're actually ill? Does that make sense?

A. Yes. I think what you're saying is the kid may say "my stomach hurts," but otherwise act, eat, and look normal. And, yes, I would agree that happens.

Q. And I think you described the 17-year-old patient you had of having a Subway sandwich right before surgery?

A. Yeah, well, I can't say it was the chain, but it was a sub.

Q. Okay.

A. He's like, "I just ate, what do you mean I need an operation?"

THE COURT: Thank you, very much.

I don't know if my questions raised anything either respondents or petitioners would like to follow up on, but while the doctor is still here, I want to give you that opportunity. So I'll start with respondents.

MS. GARD: May I just have a moment?

THE COURT: Absolutely.

MS. SMITH: I don't have anything else, Your Honor.

THE COURT: Well, you don't know yet because they might ask a question.

MS. SMITH: You're right. I apologize.

MS. GARD: We have nothing, Judge. Thank you.

MS. SMITH: I still have nothing.

THE COURT: Good answer.

Thank you, very much. We appreciate your testimony.

DR. McKAY: Thank you, sir.

THE COURT: Safe travels.

MS. SMITH: Your Honor, could we take a brief recess before our next witness?

THE COURT: Yes. Are we continuing with the gentleman from yesterday?

MS. SMITH: Yes.

THE COURT: Great. Yes. How long do you need?

MS. SMITH: We just need to confirm that he's actually here. We went a little faster than we thought we would. He is in Tucson, we just need to make sure he is in the building.

THE COURT: Okay. Well, Tucson's a pretty big place. We'll take a 10-minute recess, but I am going to sit here while you tell me if we're going to be needing longer than 10 minutes.

(A recess was taken from 9:55 a.m. to 10:07 a.m.)

PATRICK R. HANNON, WITNESS, PREVIOUSLY SWORN

THE COURT: You're still under oath.

DIRECT EXAMINATION (RESUMED)

BY MS. SMITH:

Q. Thank you for coming back, Dr. Hannon.

A. You're very welcome.
Q. So we left off yesterday taking a look at some of the photographs that you had taken of the van in the impound lot. Today we did bring the original image files so we can see the real photos as opposed to the bad PDFs that I had yesterday.
A. Okay.
MS. SMITH: Just for the record, Your Honor, these pictures correspond directly to the ones that are in the PDF. I don't know if you want us to submit a new exhibit or if that's sufficient.
THE COURT: Well, you know, here's the thing. If you can submit them in this format, I think it would be valuable, because, you know, I'd like the record to be complete, and if I am viewing something that's different than what's in the record, that would be a problem. So, yes, I'd like you to -- yes, that's fine.
MS. SMITH: I've handed the clerk both a hard copy and CD copies of the original images, which we have now marked as 119B. I am going to refer to the page numbers that were in the original exhibit, 119.
THE COURT: That's fine. Thank you.
MS. SMITH: Sure. Thank you.
THE COURT: These are copies for me or are these --
MS. SMITH: Those are for you.
THE COURT: Okay. So you're going to be filing them

at some point, right?

MS. SMITH: I guess I would move to admit them right now, if that's okay.

THE COURT: You could admit them, but -- I don't know what the practice is here, but, you know, generally the Court doesn't maintain copies of the exhibits. I just want to make sure that, for the record, we've got what you've already filed, plus we've got now the same photos in a different format. What are they, JPEG?

MS. SMITH: Yes.

THE COURT: You've got them in JPEG, so you haven't lost the quality that you have from them being converted to a PDF. So as long as they are now part of the record and we have them somewhere in the record. Again, I am not sure what the practice here is.

MS. SMITH: I think this is actually our official record copy right here. (Indicating)

THE COURT: That's fine. I think we're good.

MS. SMITH: We can add them to that. Okay. Thank you, Your Honor.

THE COURT: Thank you.

BY MS. SMITH:

Q. Let's take a look at 119 51B, which, again, corresponds to the image that's on the bottom of Page 51 of Exhibit 119. We looked at these yesterday, but I think we can see them more

clearly with what we're looking at today.
A. Yes, ma'am.
Q. Can you describe what we're looking at here?
A. This indicates a 60-foot displacement from the van, and likewise the camera is set at 46 inches from the ground.
Q. Let's look at the next photograph, which is 119 52A.
This is the photograph corresponding to the description that we just looked at?
A. Yes, it is. So that would be a 60-foot distance or displacement.
Q. Can you describe what you can see in the van from this distance?
A. Yes. I can see both windows. I can see through the windshield. I can see the passenger side seat. I can see part of the driver's side seat. At that point the A pillar, which connects the windshield not driver's side window, the A pillar is obscuring some of the seat back of the driver's side seat. I can see where the dash comes up higher than the windshield at this point.
Q. Would you describe the inside of the van as dark?
A. I would describe it as dark. And, again, due to the amount of light that's coming into the interior, even though there are clearly windows all the way around. I would describe it as dark.
Q. All right. Let's take a look at the next photo, which is

119 52B. Can you again read for us what's on the notepad.
A. Yes. Again, a 60-foot distance displacement. Camera height at 46 inches. Then a note to myself: Pat in a seat in lateral flexion. So I'm in the seat and I'm laterally flexing. I'm bending to, actually, my right, towards the passenger side seat.
Q. Let's take a look at the photograph corresponding to that, which is 119 53A.
All right. What do you see here?
A. If I look closely, I can see that the passenger side seat looks different, I see my outline of my head. I do see that my face is turned; it's dark, but I can see the left side of my face as I have turned.
Q. And it looks like you are leaning quite a distance to the right, is that accurate?
A. I am. And I know my intent was to have my elbow up. I'm not sure that I see a clear view of my elbow in this photograph, but I know that I did have my right elbow taken out to the side of my body.
Q. And I think you took some subsequent photos from different distances from the van, is that correct?
A. Yes, ma'am.
Q. Let's just take a quick look at those. If we could go to 119 54A. Again, this is Exhibit 119, at Page 54, at the top of the page.

A. And that's 50 feet, so we're a little closer. Again, camera at the same height.
Q. If we could take a look at the next picture.
So in terms of perspective error and acuity, how does this compare to what we previously saw?
A. Well, we've moved 10 feet closer. The perspective error is not significantly affected by moving 10 feet closer. Obviously I can see more in terms of acuity from this distance, from 50 feet. But, again, I see the outline of the seat, the passenger side seat. Again, from this particular angle, I see that the A pillar of the van is about right in the middle of the driver's side seat. So I see about the same thing.
Q. We're just going to look at one more photo which I think is a little bit more closer. Now we're at 40 feet.
A. All right.
Q. Can we take a look at the next picture. This is 119 56A, which is Exhibit 119 on Page 56.
A. Yes. And I think, you know, at this point one thing that is a little different is that I have a better view of the seat belts on the passenger side. I also have a better view of the steering wheel on the driver's side. But, again, because we're simply keeping the angle proximate with the same and simply moving closer to the van, I still have the problem with the A pillar in this particular photograph, but I can see a little more detail.

But clearly at 60, 50 and 40 feet, it's dark inside. Due to the amount of illumination that's coming into the van.

Q. Do you understand from reviewing the Lopez children's testimony that while they may have initially been looking through the windshield, they also testified that they observed things through the driver's side window?

A. Yes. And I believe that there was a little difference between Ray and his sister, Laura. Laura indicated that at one point that she could see through the windshield, and apparently she was -- she focused first, so to speak. Whereas Ray -- oh, pardon me.

I think there was some discrepancy there in terms of court versus interview, and so on. But at least one of the children indicated that they could see through the windshield and also through the side window, and then one of the children indicated it was primarily through the side window.

Q. And did you take some measurements and do you have an opinion about the children's ability to see through the driver's side window?

A. Yes. And, of course, depending upon perspective error, but even at 50 feet, you can see that there is some perspective error there. And certainly when the van moves closer in between the Lopez children and likewise Choice Market, at that point, because of their eye height, at approximately 46 inches, and likewise the windowsill being up around 56 inches, they're

in a position where they're looking up, much of their view would be blocked by the windowsill.

Now, at that point they still would be able to observe the individual's upper torso, head and neck. And we're talking about Barry Jones. So they would be able to observe that through the driver's side window.

And likewise, depending upon where the van is, they would be able to see Rachel Gray, at least her head, if it's not blocked by the head and body of Barry Jones.

Q. Okay. Did you form an opinion about whether Rachel would be blocked by Barry if looking through the driver's side window?

A. It depends on the time point, Ms. Smith. So, in other words, when the head and shoulders and upper torso of Barry Jones precisely aligns, or aligns, with the head of Rachel Gray, then it would be entirely blocked. And before that time period there would be some observation, they would be able to see part of Rachel's head. And, again, sitting in the seat, you know, she is only up about 21 inches, so about six inches above the windowsill is all that they would be able to see.

Now, after the van passes by, it's those seat backs, those high seat backs, that really would block both individuals.

Q. And when you are telling us about Rachel's seated height, how did you determine that?

A. I determined that, first of all, from autopsy. So at the

autopsy she was approximately, I believe, 110 centimeters, approximately 40 inches in stature.

So I looked up some tables. There are differences as we age, and for a child three to four years old, 40 inches in stature, seated height would be approximately 21 inches. And that's approximate. I didn't have a scale at autopsy that gave me that figure, but that's pretty darn close.

Q. And based upon all of your observations and measurements, do you have an ultimate opinion about the children's ability to see into the van?

A. Well, the ultimate opinion is it's very questionable. And I know in my interview I clarified that due to all of the number of factors that come into play, in terms of acuity at 70, 80 feet, perspective error, glare, lack of illumination inside the van. Likewise, A pillar, Barry's body, and so on.

So, when you take all of that in combination, I think being able to see with any kind of a surety or conviction is improbable.

Q. You also undertook an analysis of the plausibility of some of the actions that the Lopez children described, is that correct?

A. Yes, ma'am.

Q. How did you conduct this analysis?

A. Well, I conducted that analysis. Again, I had some pictures taken. Mr. Sowards took some of the pictures. I used

myself as an exemplar. It turns out that -- well, we know now Barry and I are almost identical in height, at five foot four and a half. I've lost some height over the last 10 years.

Q. You're referring now to the fact that you recently took some measurements of Mr. Jones?

A. Yes, I did, in early October.

Q. Could we pull up 119A, which is in evidence.

MS. SMITH: I apologize, Your Honor, with using the original images. We just have to go back and forth a little bit.

THE COURT: That's fine.

BY MS. SMITH:

Q. Dr. Hannon, does this reflect the measurements that you took of Mr. Jones and then compared to yourself earlier in October?

A. Yes, ma'am. And you see Barry Jones' measurements down at the bottom, my measurements continue on the next page. But you can see, in terms of height, we're almost identical, in terms of stature. There were some differences in terms of upper arm, forearm, and hand between Barry Jones and myself --

Q. Could we take a look at the next page?

A. Sure.

Q. Could you briefly just tell us, in terms of the arm length, how you and Mr. Jones compared?

A. Yes. Barry Jones' arm length, and measuring from the

glenohumeral joint down to the number three Ray, or MCP joint, metacarpophalangeal joint, was approximately, I believe, 23.5 inches. That's on the previous page.

MS. SMITH: Jennifer, would it be possible to show both pages at once? Could you show both pages at once?

THE WITNESS: Sure. And so what we see is, in terms of total UE. That's good right there. Pardon me.

MS. SMITH: Could you scroll so we can see both Barry Jones and -- perfect. Right there.

THE WITNESS: In terms of total UE, that's upper extremity, Barry Jones, his arm length, which included the hand to the number three MCP, is 23.5 inches. Likewise, that same measurement in me is 25.25. So we're looking at almost a two-inch difference there between the two, in terms of arm length.

So Barry Jones actually has a shorter upper extremity than mine. And this is all within biological individuality.

BY MS. SMITH:

Q. Is arm length something that changes over time?

A. No, it doesn't. So stature can, primarily to the spine, briefly, the spine can shrink due to factors which I won't go into, but arm length stays the same.

Q. I believe both you and Mr. Jones might have been five-six at various other times in this case when your measurements were taken, is that consistent with your testimony?

A. Yes. In terms I think probably I'd have to go back probably 15 years to have a five-foot-six-inch stature, in all honesty.

Q. I believe we might see a picture where you are a little bit taller than what's listed here, from when you took your photos earlier.

A. Oh, I had shoes on though.

Q. Okay. Fair enough.

Was there a difference between your torso length and Mr. Jones' torso length?

A. Yes, there was. And Barry Jones' torso was a little bit longer than mine. Taller, let's see, in terms of torso.

Q. Seated height?

A. His seated height was 35.5 inches and my seated height is 32.25, so there's a little over a two-inch difference in terms of sitting height. Barry Jones is about a little over two inches taller in terms of sitting height, even though our standing stature barefooted is the same.

Q. And in terms of your analysis, does that difference in torso length make any difference?

A. No. No, it does not. Actually, arm length would be a more important variable. And the reason being is, is that even though, sitting height, I may be a little bit shorter and Barry Jones is a little bit taller, that only really comes into play if the lean is extreme. So through a part of the arc, in terms

of bending over looking at the radius from my buttocks to the top of my head, that's when, you know, at this angle it's a minimal difference, it might be as much as one-inch difference.

What's more important would be the arm length. When I say "arm," I'm referring to the entire upper extremity.

Q. Based upon your recent measurement of Mr. Jones, what's your opinion about whether you served as a good exemplar for him in the photographs we're about to look at?

A. I think, in retrospect, I served as an excellent example in terms of anthropomorphic measurements.

Q. Let's take a look at some of the photographs of your analysis of the described actions by the Lopez children. If we could take -- I'm sorry.

Let's go back to your report, quickly.

This is Exhibit 119, at Page 28. Could we enlarge the bottom several lines there.

All right. So we're going to look at this photo in a minute, but this is your description of what you were executing. Can you kind of describe for us what you did here in your conclusion.

A. Yes. Initially I was leaning over to my right in order to execute a backhand fist or even further for a backhand elbow to the head and torso of Rachel Gray.

Q. Again, that's based upon the testimony you reviewed of the Lopez children of what they observed?

A. Yes. That there could have been a strike by the fist to the face, the head. The face was mentioned a couple of times. And then likewise I believe certainly Laura Lopez mentioned a strike by the elbow. And I believe Reynaldo did, too, at one point.

So an elbow strike in these photos was demonstrated with my right arm up to the side, and then I am leaning over, I'm bending to the left, lateral flexion, and likewise I am resting on my right buttock. I've leaned over that far on the wing of the seat pan. And I'm attempting to go ahead and get my elbow up to that point where some patches had been removed from the passenger seat.

Q. In your report here you said that driving the van while in this position would have required exceptional skill, it would have been extremely awkward, and that the hypothesized actions by Barry Jones while driving the Ford van are extremely improbable. Is that correct?

A. That is correct, and that's probably best illustrated by some of the photos. And I can elaborate if you want me to.

Q. Sure. Let's take a look at some of those photos.

This is going to be 119 74B, which again is the image on Exhibit 119, on Page 74, on the bottom.

Okay. Can you describe what we're looking at here, Dr. Hannon?

A. What I've done is I've leaned over the wing of the driver's

side seat pan. You can see that my left hip is actually off the seat pan. I'm sorry. My right hip is off the seat pan, my left hip is still on the wing. And I'm laterally flexing, I'm bending over. I'm bringing up that arm to my side. We call that "abduction." I've formed a bent elbow, and I'm coming back with that elbow at approximately -- I believe that that top mark was up around 20 inches, 21 inches.

Q. And you're trying to approximate here an elbow strike to the head of Rachel Gray?

A. Yes, I am. Yes. And what's evident in this photograph is the amount of lean that I have, the movement of my hips over to the seat to the right. But also you note that my left hand is grabbing the steering wheel. And although I have some control, the control is very minimal in terms of steering.

Q. Are you actually using the steering wheel to brace yourself?

A. I am using the steering wheel to brace myself. If I were to go ahead in this particular position and not brace myself with my right arm, and let go with my left hand, I would topple over. My center of gravity would bring me over into the seat.

Q. Let's take a look at Picture 119 72B.

Is this kind of another angle of what we were just looking at?

A. Yes. I think it's a little more of a close-up. You see it's about the same photograph. You probably have a better

view of my left forearm holding onto the steering wheel, and that's to support myself.

Q. Let's take a look at 119 63A.

Okay. Can you describe what we're looking at here?

A. Yes, in this instance I tried -- it's not the same photograph, a different photograph was taken, but I tried to approximate the same position. So what you see again is you see that lean, you can see that I am looking towards that passenger side seat, elbow is up.

One thing you notice is that my left foot is off to the side, it's counter balancing, but you don't have a good view of my right foot. But the problem is now that right foot needs to operate both the accelerator and operate the brake, if you will. And that's difficult in this position because, in a sense, I am bracing with that right foot, left foot out to the side. I could probably reach the brake and the accelerator, but from this particular position control would be extremely difficult.

Q. I think you already mentioned that to get into this position your buttocks were actually coming off of the driver's seat, is that correct?

A. Yes. And you can see it here, that certainly that left buttock is off the seat. I am resting on the wing on my right side buttock.

Q. Could we take a look at Picture 64A.

This again is showing that you're actually coming out of the seat in order to reach over to the passenger seat?
A. Yes. And keep in mind, as per your investigator, that these seats are actually about 27 inches apart. You know, it's not a standard configuration. Okay. So you've got about a 27-inch distance between the seats.
Q. Do you have any recollection that the passenger seat might not have been actually parallel to the driver seat in the van? Do you recall that?
A. I don't recall that.
Q. Could we go back to the previous photograph we were looking at, which was 63A?
Again, in this photograph you are bracing yourself with both your feet and your left forearm in order to avoid falling over?
A. Yes. And, of course, when I am leaning in that particular -- that particular amount lean, or laterally flexing to the right, I might have some control in terms of moving the steering wheel one way or the other, a couple inches one way or the other, but the steering is minimal. Coupled with the problem of accelerating and/or braking.
Q. If we could go back to Exhibit 119, which is your report, at Page 31. Can you enlarge the first bullet point under Conclusions.
You ultimately concluded that the physical actions of Barry

Jones described by the two Lopez children while he was driving the Ford van were extremely improbable from a functional anatomy biomechanics perspective. Is that correct?

A. Yes. And I should elaborate on that just a little bit.

There were so many statements from both defense and prosecution interviews, there were also statements during court, so you'd have to pick each one apart there was so much inconsistency. You know, that figures into some degree as well.

But, clearly, there are so many reasons, aside from the inconsistent testimony, that make this two- to three-and-a-half second observation extremely questionable. Even in adults, let alone eight year-old children.

Q. Dr. Hannon, you also took a look at some of the injuries Rachel suffered, is that correct?

A. Yes, ma'am.

Q. The first question: Did you see any injuries on Rachel that were consistent with the actions that the Lopez children described in terms of the elbow and fist strike?

A. No. There were some small bruises on the face, there were more significant bruising on the right side of Rachel's face. But, clearly, an elbow or a backhand fist to the nasal bones, which are bifurcated, in adults those fail at about 75 pounds. We don't have data on four-year-old children, but you can darn well bet it's much, much less. So a good strong tap will

fracture those bifurcated nasal bones.

Likewise, the zygoma, which is the upper cheek right here, and it blends in with part of the temporal bone to form the zygomatic arch, those bones are very fragile as well. It's not like the frontal bone. The frontal bone is pretty darn tough, but the zygoma and the zygomatic arch are considered fragile bones. In adults, they can fracture at approximately 200 pounds. That's based on cadaver work. We don't have those data, of course, on children.

Q. Did you also evaluate whether any of Rachel's injuries were consistent with being caused by a pry bar that was in evidence?

A. I did.

Q. Did you actually go and look at that pry bar?

A. I did. And that was also on, I believe, October 5th of this year.

Q. And you weighed that pry bar?

A. I did.

Q. I believe our office also provided an exemplar pry bar to you?

A. Yes, an exemplar pry bar was actually provided to me back in 2010, I believe. And so I had that pry bar for some time. The actual pry bar was provided to me on October 5th. We took photographs, and likewise we took the weight, and the weight was 660 grams.

Q. Did you conclude that the pry bar in evidence and the

exemplar pry bar that you had previously had were substantially the same in terms of your analysis?

A. Substantially the same. I should mention in my report I mentioned that I had weighed the pry bar, and I'm not sure what happened, but I had weighed it at 660 grams.

To back up a little bit. It turns out that the actual pry bar was approximately 651 to 652 grams, and so my initial impression when I weighed the actual pry bar was that it was about 10 grams heavier, which is inconsequential. But then I found some new measurements that were taken in 2017 of the prior, the exemplar pry bar, and it turns out that the exemplar pry bar that I had had for about five, six years weighed 610 grams. The actual pry bar was a little bit longer, just a little bit under 15 inches, and likewise weighed 652. So we're looking at about a 41 to 42 gram difference, which is a little bit over an ounce difference. It's a difference that doesn't make a difference.

Q. I believe in your report you concluded that Rachel's abdomen injury was not caused by the pry bar, is that correct?

A. That is correct.

Q. Can you explain to us the basis for that opinion?

A. Well, the basis is, is that although the pattern has some characteristics of possibly one end of the pry bar, the biggest problem -- which is why no expert has opined that this pry bar did produce that abdominal injury, no expert on either side has

opined that. And the reason is, is that the actual pry bar is about three-sixteenths of an inch wide, it comes to a sharp end where it curves down on the end, and if Rachel Gray were hit with that pry bar with enough force to actually in a sense move into the transverse colon through the abdominal musculature -- rectus abdominis, transverse abdominis, and the obliques in the fatty tissue, through a number of different organs -- you would see a very deep laceration.

At the very least, you would see a laceration through, in fact, all of the abdominal musculature, most probably a laceration in the transverse colon, and likewise deep injury to the pancreas, perhaps the gallbladder, which sits right next to the duodenum, in addition to rupturing the duodenum. So it's completely inconsistent with any kind of a blow that would produce, if you will, a deep injury.

This is probably a blow to the tummy, and it could have produced certainly a bruising that was perhaps a quarter of an inch thick. I see that referenced -- I see the reference to the bruising in the autopsy report. I have not seen any photos where that bruise was cut into, exposed, that would definitively tell me that this was a deep bruise of at least a quarter of an inch. But most assuredly, it's not a blow that could have possibly produced this rupture to the third portion of the duodenum.

Q. Let me just make sure I am understanding what you're

saying. So if the pry bar had been used to cause the rupture to the duodenum, it would have to have struck Rachel in a way where it was a focal point injury that would cause a laceration from the outside of her body. Is that what you're saying?
A. Yes, it would have to go through superficial tissues first and would have to produce a significant injury in superficial tissues and moreover would also produce kind of sharp impact injuries to internal organs. And we don't see any of that.
But there's another reason that it seems very improbable that this pry bar was used even to produce a superficial injury. And that is when the pry bar is swung, as it's swung with a backhand or a forehand, most likely what would happen is, is that the tip of the pry bar would come in contact first with the tummy -- let's just call it "the tummy" -- on Rachel's right side; and if that happened it would dig in. That end of that bruise would be deeper than the rest of the bruise. And the bruise, at least from the photographs that I viewed at autopsy, are fairly consistent in that approximately something hit her fairly flat, if you will, across her tummy.
Q. Do you have an opinion about or some knowledge of what might be a more probable mechanism for Rachel's abdominal injury?
A. Well, there's that bruise. There are also two bruises below it that are very faint. But they're all approximately parallel. Now that doesn't mean that something was swung one

time, but it might point to some sort of a stick or a rod that was swung at some point and produced some bruising along with some scraping. In other words, if a rod hits and then abrades as well, you'll get that little tail-off bruise.

Q. Just to confirm, you're talking about the external injuries that we observed on Rachel, not the duodenal laceration.

A. That is correct. Again, the duodenum was not lacerated. It was simply, if you will, ruptured, pulled away from that lumbar spine. So what we're talking about, those parallel lines on the right side of her abdomen. And I do understand there was an incident that occurred one or two days before involving a young child, but a fairly large child, who was -- who is walking. In other words, this person, this child, was ambulatory. And that's a possibility. I can't say that's a probability, not enough information.

Q. Fair enough.

Did you also consider whether the pry bar might have caused the injury to Rachel's scalp that was observed?

A. Yes.

Q. Did you have an opinion about that?

A. I think it's not a match. And there's one primary reason for that. And I should candidly admit the scalp wound was fairly linear. It did go through all the layers of the scalp. And that includes the galea aponeurosa. And when you split that helmet, it's called a helmet, the galea aponeurosa,

there's a lot of tension there and it opens up. Okay? So it was linear in fashion.

That's the evidence for the pry bar. The problem is, is that if that pry bar had been swung with any kind of substantial force -- and I'm not talking about an all-out swing, but if it had been swung by an adult or by anybody over age 13, okay, like that, with that kind of force...(demonstrating), what's most probable, highly probable, is in a four-year-old skull, the calvarium, the top, you would produce a depressed skull fracture. And I'm really talking about the edge, the thickness of that pry bar. The actual pry bar was three-sixteenths of an inch, if you will, thick.

So you take something like that, that weighs, you know, two-thirds of a kilogram, okay, and you swing that and you hit someone on the head, a child on the head, like that...(demonstrating), you're likely to produce, extremely likely to produce, a depressed skull fracture. And that's where that top layer of bone, okay, breaks into the cancellous or spongy bone down below. And that would show up on an x-ray right away.

Q. And we didn't see that here?

A. No, there is no fracture of the skull. There are no fractures of the face, period. There are no fractures of any bones.

Q. Do you have an opinion about whether that scalp wound could

have been caused by an arm or an elbow or a fist?
A. I do. And the reason being -- no, that's my opinion. The basis for that opinion is that a backhand fist or an elbow has the potential, if swung hard enough, to produce a full thickness scalp wound. But under that circumstance you would likely see more of a stellar or a star-like pattern, and this had a fairly linear pattern as opposed to a stellar pattern.
Now, again, I should mention that in a van, swinging with a fist or an elbow, it's hard to generate as much force because one is not able to bring into play as much momentum. But I wouldn't say that it's impossible that a wound like this couldn't be produced. The main problem is it's not a stellar pattern.
MS. SMITH: Thank you, very much, Dr. Hannon. I don't have any other questions right now.
THE WITNESS: Thank you.
THE COURT: Thank you. Cross-examination?

CROSS-EXAMINATION

BY MR. BRACCIO:
Q. Good morning, Dr. Hannon.
A. Good morning.
Q. It's nice to see you again.
A. Good to see you, too.
Q. It is your understanding that, back in 2009, Paul Gruen recommended you to the Federal Public Defender's office,

correct?
A. Mr. Braccio, that is my understanding.
Q. In conducting your investigation, you accepted Paul Gruen's speed estimates for the van, correct?
A. Yes, I did.
Q. And that was 15 to 20 miles per hour?
A. Yes, sir.
Q. And you believed that that was consistent with the Lopez children's description, correct?
A. I am not sure that the Lopez -- I don't recall if the Lopez children described a speed in terms of miles per hour. If they did, then I am in error.
Q. Sure. Let me pull up your report, it's Exhibit 119.
A. Sure.
Q. Bates 3988.
If you see, on the page you indicated in your report, this velocity estimate is consistent with the descriptions of the two Lopez children. Does that refresh your recollection that you believed that speed estimate was consistent with their description?
A. Yes, sir, it does.
Q. You also accepted Mr. Gruen's opinion of the approximate position of the Lopez children and the path of the van, correct?
A. Yes.

Q. And the speed of the van and the approximate position of the Lopez children are little more than just what you term "reasonable possibilities," correct?
A. I think that's true, because in terms of precisely where they are, one would have to say it's undetermined.
Q. Correct.
You recall in your interview you told us those were just reasonable possibilities?
A. Yes.
Q. You also took the photographs in this case in October of 2009 at a different time of day than the Lopez children claimed to have seen the van, correct?
A. Yes.
Q. You were paid a little more than $20,000 for your 2010 report, correct?
A. Yes. Inspection report, but, yes, a little over $20,000, yes, sir.
Q. Do you know how much you've billed so far in this case?
A. I don't, but I believe it's -- I believe it to be under $5,000 at this point.
Q. In addition to the $20,000?
A. Yes.
Q. So we're talking just around $25,000?
A. Yes. And it could be a little bit more, but not much more.
Q. Okay. You are not a medical doctor, correct?

A. I am not.
Q. You do not know where the Lopez children were when they saw the van, correct?
A. No. Except that obviously I think they were between, where they were standing, fairly close to each other, between the van and Choice Market. But precisely where they were, I don't know.
Q. In your report, you guessed at the environmental factors such as the glare off the windshield that might have affected the Lopez children's vision, correct?
A. I am bothered by that term "guess."
Q. Let's pull up your interview. Again, this is Exhibit 208. I am showing you a transcript of our August 10th, 2017 interview, at Page 16.
You indicated at Lines 6 through 9 there: Some of these environmental factors probably would be -- well, I could opine on them but also Paul Gruen can opine -- glare off the windshield and so on. Correct?
A. Yes, that is correct.
Q. In taking your photos in October of 2009 at the impound lot, you made no attempt to correlate the conditions of the day and time with the conditions of May 1st, 1994, correct?
A. That is correct.
Q. In fact, a lot of these photos show the van with a flat tire, correct?

A. Yes. No question about it. All four tires were flat.
Q. Your only basis for knowing the location of Jones and Rachel inside the van is dependent upon the Lopez children's statements, correct?
A. That's probably true, yeah. And that's the basis for the -- the displacement, the closest displacement of approximately, I believe, 26 feet as the van passed by.
Q. You agree that Rachel's head would be visible above the passenger windowsill by about six inches, correct?
A. Yes, depending upon perspective error. But the point being is that Rachel's head, given her seated height of approximately 21 inches, sitting on a seat pan that's 15 inches below the windowsill, it's simply a matter of taking 15 from 21, which gives me six, which would -- if she's sitting upright would give me that measurement.
Q. Certainly. Again, that's presuming she's sitting down in that chair, her head is six inches above the passenger windowsill.
A. Yes, on the passenger side.
Q. And you agree that the front window, the front windshield, is actually an inch to an inch and a half lower than the passenger window, correct?
A. I would agree, but we talked about that during my interview, and noted that the -- between the cowl and likewise the dash, as it sticks up a little bit higher than the

windshield, so if there's a difference there is not much difference.

Q. You have no doubt that the Lopez children could have seen Rachel's head looking at that van, correct?

A. I think they had the opportunity to see Rachel's head when she was closer again. I question at 70 or 80 feet back, because, again, although her head was above the windowsill, it may have blended in with that seat back and head rest, so at that point was illumination sufficient for them to differentiate between the upper part of the seat back and the head rest, I would question that at that point.

Now, a little later on when they were closer, okay, depending upon lighting conditions, depending upon glare, depending upon perspective error, I think it's a possibility that they could have seen her head. I think it's depending upon where she was sitting.

Q. Let me pull up your interview at Page 20, at Line 25.

Do you recall in our interview with you, Dr. Hannon, that you indicated there was no doubt the Lopez children could have seen Rachel's head looking at that van?

A. That was on what page?

Q. It's Page 20 here in front of you, and the question was asked: You have no question, do you, that the Lopez kids could have seen Rachel's head looking at that van? And your answer was: I don't question that. Is that correct?

A. And I would agree I did say that.
Q. And you have no doubt that the Lopez children would have had a good view of the upper torso and head of Jones through that windshield, correct?
A. Yes, I would agree.
Q. You have no doubt that the Lopez children had the ability to see Jones and Rachel in the van on May 1st, 1994, at least for a short period of time, correct?
A. That's a question that's broad. I answered it on Page 36 through 38 of my interview.
I'm sorry. I meant to answer yes or no.
I think they had the ability to see both Barry Jones and Rachel Gray in the van at some point along this sequence of travel, and so on, but there are many mitigating factors that make the observation and details of the observation questionable, and I explained that in detail at Pages 36 through 38 in my interview.
Q. You were prepared for this question.
But in any event --
THE COURT: That's a comment, and I don't need comments. Just pose your next question.
MR. BRACCIO: I apologize, Your Honor.
BY MR. BRACCIO:
Q. Again, let me take you to Page 25 of your interview, at Line 22. You were asked: So, sitting here today, you have no

doubt that the Lopez children had the ability to see Jones and Rachel in the van on May 1st, 1994? You indicated: I think they had the ability, yes, to see Barry Jones and Rachel in the van.

Did I read that correctly?

A. That is correct.

Q. In fact, as the van came closer to the Lopez children, the view through the front window would be very similar to the view through the passenger window, correct?

A. I don't know that that necessarily -- I don't know that to be true. Because as it comes closer to the Lopez children, I don't necessarily -- I don't think we can assume that it was coming straight towards them. In other words, it's in fact between the Choice Market and where they were standing somewhere. So as it became closer, that windshield view tends to become less and less relevant. And as it comes closer between the market and the children, now the primary view would be through the driver's side window.

Q. I'm not sure that answered my question. Let me see if I can ask it again.

A. Sure.

Q. As the van came closer to the Lopez children, the view through the front window would be very similar to the view through the passenger window, correct?

A. As it becomes -- as it comes closer to the children, how

close are we talking about? I do want to answer your question, sir.

Q. Sure. Let me pull up your interview at Page 20, Line 18.

Do you recall that I asked you this question in the interview? Excuse me. That Mr. Todd asked you this question in the interview?

A. Let's read that. If we read that excerpt then I can comment on it.

Q. Absolutely. Starting at Line 20 of your interview: And as you approach, you know, the view would be very similar --

MR. SANDMAN: Excuse me. I apologize. Could we see the question first in the interview so we know what he's answering?

THE COURT: I think that's reasonable.

MR. BRACCIO: Certainly.

THE COURT: Keep scrolling up.

BY MR. BRACCIO:

Q. So the question was asked of you: So, through the front window her head would be, face would be visible, correct?

That was the question?

A. Yes.

Q. Whether you could see her head through the front window of that vehicle?

A. Was it head or face?

Q. Her head. Okay.

THE COURT: Well, hold on a second.

The question includes both head and face.

THE WITNESS: Okay.

THE COURT: The questions reads: Okay. So, through the front window her head would be, face would be visible, correct?

That's the question that was put to you.

THE WITNESS: Okay.

BY MR. BRACCIO:

Q. And you indicated: Yes, from a distance.

A. Yes, from a distance.

However, again, if we're looking at 70 or 80 feet away, then I think acuity could be a problem. And likewise I just -- although I didn't mention this during the interview, I think the problem of blending in with the seat back and head rest could be a problem. But certainly her head would be in view, if I can clarify that. Her head would be in view looking at the windshield from 40, 50, or 60 feet back.

THE COURT: The problem here, Counsel, is -- and I don't know, sir, if you've had a chance to read the answer you gave to the question that you're trying to cross him on now. He covers a bunch of other issues that could have impact on the view of the Lopez twins.

Anyway, well, there will be a chance for redirect.

MR. BRACCIO: Sure. I'm happy to move on.

THE COURT: That's fine.

BY MR. BRACCIO:

Q. And it's mere speculation whether Rachel was sitting or kneeling on that passenger seat, correct?

A. It is, it is speculation. She could be kneeling, she could be, if you will, sitting. And, again, I talked in my interview about why most likely she would not be standing. Her stability would not be good standing.

Q. You have discovered nothing in your investigation that would indicate that the Lopez children were not able to see Jones hit Rachel in the van, correct?

A. Could you read that question one more time.

Q. Absolutely. You have discovered nothing in your investigation that would indicate that the Lopez children were not able to see Jones hit Rachel in the van, correct?

A. Well, I pointed out a number of factors which make it very questionable, including where there were reports by Laura Lopez that Rachel was on the other side by the passenger side window. If she's by the passenger side window, we've got a problem.

Q. I understand your opinion, sir. If you could just listen to my question. My question is you have discovered nothing in your investigation that would indicate that the Lopez children were not able to see Jones hit Rachel in the van, correct?

A. I haven't seen any definitive evidence that it was an absolute impossibility that the Lopez children could not have

seen Barry Jones strike Lopez. I see a number of factors that make that observation very questionable.

Q. I understand --

A. That's the most honest way I can answer that.

Q. You were asked to look at the abdominal blow that produced a tear in the duodenum and damage to the transverse portion of the colon, correct?

A. Yes.

Q. And for children, the tolerance limits have not been established for this biomechanical insult to the abdomen, correct?

A. That is correct.

Q. Nevertheless, in your report you guessed that Rachel Gray's body would offer nearly as much resistance to a blow as an older child, but at the interview you agreed that her body would offer less resistance, correct?

A. No.

Q. Okay.

A. Do you want to pull up my report?

Q. I'll pull up your interview, at Page 22, Line 5. Why don't we even back it up to Page 21 so we can have the full context of this question.

You were asked in your interview: Is it still true that -- as it was in 2010, that the tolerance limits have not been established for --

A. Where is this? I am trying to find it on my report.
Q. I understand.
A. Go ahead.
THE COURT: Sir, if you're going to impeach him, you can just make sure counsel knows what you're referring to, and you can impeach him with what you think is an impeaching -- a statement that you think is appropriate to impeach him with.
MR. BRACCIO: Sure.
THE COURT: Go ahead.
MR. BRACCIO: Can you scroll down?
BY MR. BRACCIO:
Q. I asked you in the interview here -- I'm sorry. Mr. Todd asked you in the interview: Nevertheless, you guessed that Rachel's body would offer nearly as much resistance to a blow as an older child or adult, correct?
A. Yes, and that was a misrepresentation of my report. That was not from my report, but that was a misrepresentation by Mr. Todd. If you'll look closely at my report.
Q. Okay. I understand.
After your investigation, you concluded that accidental abdominal trauma was improbable, correct?
A. Yes.
Q. Your opinion is that the injury to Rachel's duodenum was the result of child abuse, someone administering a very hard blow when Rachel was in a position that did not permit her body

to move, such as on the ground, correct?
A. That is correct.
Q. And you indicated that probably no one younger than 13 years old could produce such a blow, correct?
A. Yes. And I threw that age out as a ballpark estimate. Someone fairly big, this would not be produced by another six- or seven-year-old child, but typically someone in the early teens on up, of course, a significant blow.
Q. And you believed that Rachel's duodenum tear could have resulted from a fist punch, correct?
A. Yes. But, again, and I talked about this in my interview, and also my report, when you look at the epidemiology literature, in terms of this injury in child abuse, non-accidental injury, it's typical when the child is laying on a hard surface, if you will.

And so it's either a foot stomp, could be a hard punch, absolutely. The literature indicates that it's primarily children between age one and up to about age five. A hard stomp, it compresses through the abdominal musculature, through the small gut, the large gut, back to the duodenum and jejunum as well, and produces this characteristic tear, particularly at the retroperitoneal portion of the duodenum.

So that takes a considerable amount of force. It's easier if you have a lateral clamp. And what I mean by that, Mr. Braccio, is the fact that if a child is laying on the

ground and a downward blow is administered, the child will not move. They can't move, they're clamped between the ground surface and the foot or the fist punch. That produces the lateral clamp, that produces the deep compression, that's what produces this injury typically in children under five.

Q. You believed that the scalp injury could have been produced by a strike against a surface, but not necessarily the ground, correct?

A. Yes, that's one option. That's one possibility. So it could have been a wall, the edge of a wall. I think that's a possibility, too.

Q. For that linear scalp wound to be caused by a fall to the ground, however, the impact would have to be on a focal point, such as a curb or rock, correct?

A. That is most likely, yes, because of the linear nature of that wound, in my opinion.

Q. An elbow has a little more focal point than a hand, but it would be unusual for an elbow strike to cause a laceration through all five layers of the scalp, correct?

A. No. An elbow certainly is -- I would term that a focal point impact. And I think an elbow, a hard elbow, with considerable momentum, could produce a full five-layer scalp opening. However, the pattern would be more of a stellar pattern.

Q. Your expertise in biomechanics does not provide an answer

to how Rachel would have reacted after being struck, correct?
A. No, I don't see that as a biomechanics question. I think that's a question for the trier of fact.
Q. We previously saw some of the photos that you took in this case, correct?
A. Yes, sir.
Q. The photos that you took of that van to demonstrate the difficulty Jones would have had in striking Rachel, but because of a bad hip some of your movement was restricted, correct?
A. I'm sorry. Could you repeat that question?
Q. Absolutely. The photos showing you in the van striking the passenger seat, correct?
A. Yes. Go ahead.
Q. Now, you had a bad hip, which limited some of your movement to take those pictures, correct?
A. Mr. Braccio, no. And I apologize for -- that was an error by the court reporter. And at that time, in 2010, I had a good shoulder. Why she put down "hip," I don't know. But at the time, in 2010, I was able to abduct my shoulder.
Now this is as far as I can go. (Demonstrating) I've had surgery on my shoulder. And so, in 2010, I was able to fully abduct, take my arm up to the side, my shoulder was okay. Subsequently, in 2014, I had shoulder surgery, and during the interview I wasn't able to go ahead and lift that shoulder very high, so I demonstrated with my left arm. And I think the

court reporter got confused between "shoulder" versus "hip."
Q. Thank you.
A. You bet.
Q. Even so, you were able to hold onto the steering wheel with one hand and hit the passenger seat with your elbow, correct?
A. That is correct.
And now we should clarify that. Where I was able to strike on the passenger seat was approximately at that 17-inch mark and at the higher 21-inch mark on the one wing, the middle wing, or towards the center of the van. I was able to go ahead and reach that point with my elbow, yes, sir.
Q. Dr. Hannon, let me show you Exhibit 119, Bates Number 3996. The top photo here depicts you striking the passenger seat of that van?
A. Yes, sir.
Q. Pull up Bates 4025. That bottom picture that we reviewed earlier, again, shows you holding onto the steering wheel striking the passenger seat, correct?
A. Yes, sir.
Q. 4026. Same scenario?
A. Yes, sir. Obviously my head is in a little different position, different photos, but same scenario, yes, sir.
Q. And 4027. Same scenario here?
A. Yes, sir.
Q. It's your opinion that the position with your foot on the

accelerator, you would not have had good control over the van, correct?
A. That is my opinion, yes. That the right foot probably could reach the accelerator, no problem there, but having good control would have been difficult.
Q. Depending on what was happening with your body in that position, holding onto the steering wheel and striking, the van could swerve, correct?
A. Yes, if striking occurred, then certainly the steering wheel could move in that position up or down a little bit and that would produce a change in direction, which you've just termed as a "swerve."
Q. Thank you.
You were also asked to examine a pry bar to determine if it had been used to produce the blow to the abdominal region, correct?
A. Yes.
Q. At the time you wrote your report, you were not aware that Rachel told her mother that Jones had hit her with a metal shoe bar, correct?
A. That is correct, that was brought up during my interview.
Q. You looked at the scalp injury to opine on what instrument could have caused the injury versus a fall to the ground, correct?
A. Yes.

Q. And you indicated that a pry bar that you examined would have likely produced a depressed skull fracture of the calvarium, c-a-l-v-a-r-i-u-m, even if swung by a teenager?
A. Yes.
Q. However, you are not saying that a pry bar absolutely could not have caused the laceration to the head, just that it was swung with any kind of rapid motion, it would produce that skull depression. Correct?
A. That is correct. I think it was questioned in terms of does it depend upon the force, and the answer to that question is yes. Obviously if it's swung with just the right amount of force to produce a full scalp wound and not produce a depressed fracture, then it's possible. It's improbable. More probable that it would also produce, in addition to the scalp linear wound, it would also produce a depressed skull fracture through at least one of those layers, those two layers, diploë layers of the skull.
Q. My final question: The damage to the head would depend on the amount of force with which the instrument was swung, correct?
A. Yes, sir, that is correct.
MR. BRACCIO: Thank you, Dr. Hannon. No further questions.
THE WITNESS: Thank you.
THE COURT: Thank you. Redirect?

REDIRECT EXAMINATION

BY MS. SMITH:

Q. Dr. Hannon, Mr. Braccio asked you about the answer you gave during your interview to the question of whether Rachel's head or face would be visible through the front window, correct?

A. Yes.

Q. And do you recall what your complete answer to that question was?

A. I don't recall verbatim, but --

Q. Could we take a look at your complete answer just to complete the record here?

A. Sure.

Q. It's Exhibit 208 at Page 20.

THE COURT: Is this a marked and admitted exhibit?

MS. SMITH: This is not a marked exhibit, Mr. Braccio just used it for impeachment, and I just wanted to give Mr. Hannon an opportunity to put his whole answer in the record. 208 is a marked exhibit, it has not been admitted in evidence.

THE COURT: Okay. I am going to have the portion that both of you have been referring to, I'd like that marked and admitted as an exhibit. Since you all have been referring him to this, it's been shown to me and to the witness, at this point I think it should be marked and admitted.

MS. SMITH: Okay. So it's already been marked, and I

guess now at this point it will be admitted.

THE COURT: Well, are you all -- I think what's relevant is the portion that you all have been referring this witness to, not necessarily --

MS. SMITH: Sure.

THE COURT: -- The whole thing.

MS. SMITH: We can identify those portions for you.

THE COURT: Go ahead.

BY MS. SMITH:

Q. Dr. Hannon, can you read your answer at Lines 9 through 24.

A. Yes.

Q. We'll make it a little bigger for you.

A. Yes, from a distance it depends on the perspective. By the way, keep in mind that although the windshield goes down a little further than the side window, it's a difference that doesn't make a difference.

And number two, you also have to look at that dash carefully of that Ford van, 1972 van. It comes up, you know, a little bit higher. In other words, it raises up a little bit past the cowl of the windshield, so at about the level of, if you will, the side window.

So, depending on their perspective, referring to the children, when they're a greater distance away, when you're a greater distance away, you have a little bit better view. And as you approach, you know, the view would be very similar, as

you get closer, the view would be similar through the windshield and likewise through the side window. It's just that Rachel, because she's further back --

Q. Then it looks like you got cut off there. Thank you.

Dr. Hannon, you were asked about whether you had replicated the lighting conditions as they were on the afternoon that the Lopez children allegedly observed the van, is that correct?

A. That is correct.

Q. Do you think that correlating exactly the lighting condition is important to your ultimate opinion?

A. No, it's not. And it would be very difficult to do.

On that day of October 27th, 2009, it was sunny, but there were some clouds as well, and it wasn't the same time of the day. So all of those factors have an effect. But clearly from 70 -- 60, 70, or 80 feet back, outlines, because of the illumination coming into the van, coupled with glare -- and admittedly I don't know how much glare played a part, but to try and replicate all of those different factors I think would be, again, a disservice to the trier of fact, because unless you can really replicate those factors, I think it can be misleading.

So the point being is my photographs of the van at impound clearly have their limitations. The view from 60 or 70 feet back is not identical. Could have been better, a little bit better. Could have been actually much worse. And no one will

be able to really recreate that, and especially because the van was in impound both for Mr. Gruen, and me at a later date, we had to go ahead and use the physical evidence as we found it.

Q. Sure. And that included, as Mr. Braccio referenced, the deflated tires?

A. That is correct, which would --

Q. If the tires had been inflated, how would that have affected the Lopez children's view?

A. Well, there is one measurement that shows the tire inflation would be between six and seven inches. So that would raise the windowsill approximately six to seven inches. Of course, this is not a static situation, you've got a van that's moving at 15 to 20 miles per hour, so all of those things come in to play and present unknowns.

Q. Sure. If the van were higher up, in general, would that make it easier or more difficult for the Lopez children to see into the van?

A. It would be more difficult, because that increases the perspective error with the windshield higher and would make it more difficult. Especially not so much in terms of seeing Barry Jones, because he's next to the driver's side window. But difficult, more difficult, in terms of being able to observe even the head of Rachel Gray.

Q. Thank you.

You were asked some questions about whether you thought it

was possible for the kids to see Barry Jones strike Rachel. Do you think it would have been possible for the Lopez kids to see the strikes that they described that Barry Jones inflicted upon Rachel?

A. No. And I'm glad you made that differentiation. Because would it have been possible at some points to see Rachel and Barry Jones? I think it's absolutely a possibility.

In terms of the strikes, for the reasons that we've discussed already, especially in view of elbow strikes to the face, no significant bone damage to the face. Likewise, strikes that were stated or indicated by the Lopez children to the chest, to the tummy, especially the tummy, absolutely would not have been visible.

So all of those inconsistencies lead me to believe that their observations, from a biomechanics point of view, and a line of sight or neurosciences point of view, are extremely questionable.

Q. Do you recall in your review of the testimony that during the trial Ray Lopez was actually asked to reenact some of these actions that he described?

A. I believe so. It's been a while since I've read that trial transcript.

Q. And when Ray was describing or acting out these motions, do you recall at all anyone performing an extreme lean to the right like you were doing in these photos?

A. No.

MS. SMITH: I don't have any other questions.

THE COURT: All right. Thank you.

Thank you, sir. You may step down.

How are we doing on witnesses for the day? Where are we?

MS. SMITH: We have one more witness today, Dr. Esplin. If we could do him after lunch, that would be great.

THE COURT: Okay. Do you both anticipate the bulk of the afternoon with that witness?

MR. BRACCIO: I doubt I am going to have more than 45 minutes with him, if that.

THE COURT: Is he your --

MS. SMITH: He is my witness. It will probably just be two, two and a half hours maybe, max.

THE COURT: Okay. So why don't we -- go ahead.

MR. BRACCIO: Your Honor, just for Your Honor, I spoke with Sonia Pesqueira last night, and she was actually willing and able to cancel her appointment on Monday, so she is planning to be here. We can start her first thing Monday morning, we can take her Monday afternoon. I anticipate we'll be a little bit of time with her, so I think it's better to probably start her Monday and then have her continue into Tuesday.

THE COURT: Because we have to take somebody out of

order then on Monday, right?

MR. BRACCIO: Nope.

MS. SMITH: We're going to be done with our witnesses on Friday, so then we can start with Pesquiera Monday morning.

THE COURT: But we're still on track then to finish by the end of Tuesday?

MS. SMITH: Yes, Your Honor.

MR. BRACCIO: That's correct.

THE COURT: What we'll do then is we'll break now until 1:00. If we start at 1:00, will that give both of you sufficient time with this next witness?

MS. SMITH: Definitely, and I think we'll still end a little early.

MR. BRACCIO: Absolutely.

THE COURT: And then tomorrow?

MS. SMITH: Tomorrow we'll start with Stuart James, who is our bloodstain expert. And then Judge Hazel is coming tomorrow as well, and Mr. Cooper.

THE COURT: Is that enough time?

MS. SMITH: Yes.

THE COURT: For all three of those?

MS. SMITH: Yes.

THE COURT: All right. So we'll recess now and resume at 1:00 p.m.

(Off the record at 11:24 a.m.)

C E R T I F I C A T E

I, A. TRACY JAMIESON, do hereby certify that I am duly appointed and qualified to act as an Official Court Reporter for the United States District Court for the District of Arizona.

I FURTHER CERTIFY that the foregoing pages constitute a full, true and accurate transcript of the proceedings contained herein, held in the above-entitled cause on the date specified therein, and that said transcript was prepared by me.

Signed in Tucson, Arizona, on the 27th day of November, 2017.

s/A. Tracy Jamieson
A. Tracy Jamieson, RDR, CRR